

**A NEW ARRANGEMENT AND A NEW GENERIC  
NAME IN THE GORTYNID SERIES OF THE  
ACRONYCTINÆ (LEPIDOPTERA)**

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Whatever the preference of authors in the nomenclatorial buffeting about which has befallen the gortynid series of genera, of the Acronyctinæ, there are certain satisfying natural affinities that appease inquiries into their relationship. Of outstanding prominence in this phylogenetic complex is a certain line whose ancestry goes back to a boring, grass-feeding, larval habit, that together with other special characteristics give stress to an individual branch whence several lateral off-shoots have arisen. The existing representatives of this early type are scattered through the North Temperate Zone and their boring larvæ yet cling to grasses so far as known. Unlike the usual diaphanous, boring larva these, in their early stages particularly, show types of coloration whereby they may be readily placed. A peculiar, ringed coloration has developed with some and these connect with a second likewise ringed larval form that has forsaken the grasses, yet bore in the higher herbaceous plants. From this category a European off-shoot gains what is admittedly generic rank through a clypeal development in the adult, with its larva still perpetuating the peculiar ringed markings.

In the North American fauna, a numerous and for the most part a compact group acknowledges relationship to this ancestral stock through one species at least, in its ringed larva, but as an entirety they exhibit many exclusive larval and adult phases. Two score of their early-stage larvæ may be recognized at glance by whitish longitudinal markings on a dark background, with a preponderance of the species having the lines broken midway so as to exhibit a characteristic, girdled appearance. A Pacific Coast species, through a clypeal modification of the adult, must be set apart, though in every other respect it belongs with the

major series. Still more distantly related is an eastern species which cannot be associated in the other groups.

Taking these categories as they stand in the later lists, we have the genera *Apamea*, *Gortyna*, *Xanthoecia* (or *Ochria*, if Hubner's name be allowed), *Papaipema*, *Emboloecia*, and one previously considered under *Xanthoecia* but which cannot be so continued in the light of these phylogenetic concepts. This has to do with the species *buffaloensis* Grt., whose larva mines the stem and extensive rootstock of *Saururus cernuus*, in the eastern United States, from southern Canada to Florida.

Grote,<sup>1</sup> in the knowledge of his time, was inclined to consider all this gathering, with the exception of those adults with frontal development, as best treated under the single genus *Gortyna*, and it may be convenient to yet speak of them collectively as the gortynid series. Later writers made much of the thoracic tufting as a taxonomic detail, and Smith<sup>2</sup> in addition pointed out the advantages arising from a genitalic study of the males. Of venational characters, there seems nothing distinctive. Since Smith's work, a fuller perspective of genitalic details illuminate certain departures. With *Apamea*, an anomaly arises; in the *nictitans* group, having five Eurasian and three North American forms, their genitalic details readily separate them into as many well distinct species, yet the moths seem to show only ordinary varietal differences, and until more is known of their larvæ, their standing may be optional. With *Papaipema* mainly, a genitalic type arises which has a certain generic status, even though in many cases specific differentiation is unconvincing in this organ alone. Throughout the series, however, genitalic comparisons aid greatly. With those adults having frontal development, the pupæ show this configuration, excepting *sauzalitæ* Grt., and in one *Papaipema* instance, *maritima* with a smooth frons, has a pupal prominence over the thoracic tuft, but which would inferentially suggest a clypeal protuberance.

In weighing this sum of evidence for the series, the advantage arises that for more than half the number of species their larvæ are known, and since larvæ in their earliest stages unquestionably

<sup>1</sup> Proc. Amer. Philos. Soc., Vol. XXXIX, No. 162. 1900.

<sup>2</sup> Trans. Amer. Ent. Soc., Vol. XXVI, May, 1899.

point back to the ancestral types, their value here becomes obvious and of the first importance.

Hampson,<sup>3</sup> 1910, proposed the generic term *Xanthoecia*, with the European *flavago* as type, and included our eastern *buffaloensis*. He erected *Emboloecia* at the same time to receive our western *sauzalite*, since its frontal armature was much different—a vertical, keel-like ridge. Excepting this feature the latter species is typically a *Papaipema*; its genitalia conform to that genus exactly; the adult is superficially similar; the imperfectly known larva seems to agree and the pupa appears to be that of a species having a smooth frons. In position, *Emboloecia* must certainly stand contiguous to *Papaipema*. The species *flavago*, with its ringed larva and similar genitalia, is close to the *micacea-immanis* section of *Gortyna*, and should have such placement. *Buffaloensis* is clearly not congeneric with *flavago*, nor with *sauzalite*, when all the evidence is weighed. The frontal protuberance is individual; its larva in striped coloration and setal arrangement exhibits a form near *Papaipema*, yet not of it. The genitalia are even more individual and altogether the species has nowhere a position in the gortynid series, except as a separate genus. Because it links in an unbroken chain to the ancestral type the following name is proposed.

Genus **Parapamea** nov.

Genotype; *P. buffaloensis* Grt.

ADULT: Tongue normal; eyes round; palpi upturned, second joint with moderate vestiture and arising to middle of frons; antennæ ciliate; frons armed with a small, reduced thorn-like point; thorax heavily clothed, the moderate, prothoracic tuft arises behind the prominent collar and is composed of long hair-like scales, the metathorax has a lesser and divided crest; body covered with short scales; hind tibia with two pairs of equal, stout spines. Forewing not broad, slightly produced at apex; vein 3 and 5 from near the angle of cell. Hind wing with veins 3 and 4 from the lower and 6 and 7 from the upper angle of cell, 8 joints to the cell near the base. The male genitalia are without striking characters; uncus a single curved arm; valve uniformly broad, rounded at costa with a lobe protruding at the ventral end, not set with heavy spines; from the medial area the free, somewhat trigonate clasper arises, having smooth edges.

LARVA: Cylindric, longitudinally striped; tubercles large and in full complement; with mining habit.

<sup>3</sup> Cat. Lepid. Phal. Brit. Mus., Vol. IX, p. 32.

PUPA: Somewhat elongate, cylindrical, the frons plainly showing its tuberculate nature, with a pair of sharp anal spines.

The three genera with frontal armature separate as follows:

1. Frons having a vertical ridge drawn out to a point; forewing bright yellow; larva ringed, tubercle I exceeding II.....*Xanthoecia*
2. Frons having a keel-like ridge; forewing yellowish; larva with tubercles I and II equal.....*Emboloecia*
3. Frons having minute, conical, sharp, central point; forewing purplish; larva striped, tubercles III on abdominal joint eleven of exceeding prominence .....*Parapamea*

Employing the generic terms in the sense of the Barnes & McDunnough List, 1917, the Gortynid series should receive the following placement:

*Apamea*  
*Gortyna*  
*Xanthoecia*  
*Papaipema*  
*Emboloecia*  
*Parapamea*

It is particularly argued that there be no interpolation of other genera in this series. *Achatodes*, *Brachyxanthia*, *Rhodoecia*, *Pyrria*, *Calloecia*, *Eurythroecia* and *Copifrontia* can in no way break in on the natural affinities of the gortynid group.

The occasion is opportune to note that *Papaipema erubescens* Bird,<sup>4</sup> 1911, whose larva bores a tomentose thistle, *Cirsium occidentale*, at San Francisco, Cal., is the same as *Emboloecia sauzalite* Grt., 1875. Dr. F. H. Benjamin called my attention to the fact that *erubescens* possessed a modified frons and the specimens of *sauzalite* now in collections affirm the individuality of the two. When *erubescens* was proposed, so far as the writer knew, the British Museum type of the Grote species was unique, and the holotype is much redder and richer than a drawing of that type appeared. *Sauzalite* proves to be a variable species and the term *erubescens* might be retained with propriety for this more rosy form. There is yet another form in which the normal white stigmata are suppressed, or appear only concolorous.

The frontal ridge is not definitely indicated in the pupa, but shows prominently when the frons of the adult is denuded.

<sup>4</sup> Can. Ent., Vol. XLIII, p. 37.